

What is claimed is:

1. A method for acquiring seismic data while drilling a well, comprising;
 - (a) conveying at least one seismic receiver installed in a drill string;
 - (b) generating coded seismic signals by a seismic source at a surface location;
 - 5 (c) detecting the coded seismic signals with at least one sensor in the at least one seismic receiver at least one location in the wellbore; and
 - (d) computing an arrival time for the detected seismic signals in the seismic receiver.
- 10 2. The method of claim 1 wherein said computed arrival time is transferred to the surface processor.
3. The method of claim 1 wherein said computed arrival time is stored in the seismic receiver.
- 15 4. The method of claim 1 wherein said coded seismic signals further comprise timed discrete events.
5. The method of claim 1 wherein said coded seismic signals further comprise timed
20 discrete frequencies.

6. The method of claim 1 further comprising a plurality of seismic receivers located along the drill string.

7. The method of claim 1 further comprising;

- 5 i) detecting the seismic signal with at least one sensor located at the surface;
 and
 ii) storing the signal detected by the at least one surface sensor in a surface processor.

10 8. The method of claim 1 further comprising transferring the signals stored in the seismic receiver to the surface processor upon removal of the drill string from the wellbore.

15 9. The method of claim 1 further comprising processing, according to programmed instructions, the surface detected signals and the seismic receiver detected signals to generate a seismic map.

10. A method for acquiring seismic data while drilling a well, comprising;

- (a) conveying at least one seismic receiver installed in a drill string;
20 (b) generating coded seismic signals by a seismic source near a surface location;
 (c) detecting the seismic signals with at least one sensor in the at least one seismic receiver at least one location in the wellbore;

- (d) computing, in the seismic receiver, a checkshot transit time for the detected seismic signals; and
- (e) transferring said checkshot transit time to the surface.

- 5 11. A method for acquiring seismic data while operating a drill string in wellbore, comprising;
- (a) synchronizing, at the surface, a surface clock in a surface controller with a downhole clock in a seismic receiver;
 - (b) programming, at the surface, a processor in the seismic receiver to activate
10 during at least one predetermined time window after a predetermined delay time,
 - (c) conveying the seismic receiver in the drill string to a location of interest in the wellbore;
 - (d) generating, under control of a surface processor, coded seismic signals by a
15 seismic source near a surface location;
 - (e) detecting the generated seismic source signals with a near-source sensor and storing said signals in the surface processor;
 - (f) detecting the seismic signals with at least one sensor in the seismic receiver at a location of interest in the wellbore;
 - (g) storing the detected seismic signals in the seismic receiver;
 - (h) transferring the detected seismic signals from the seismic receiver to the
20 surface processor; and

- (i) processing the near-source signals and the seismic receiver detected signals according to programmed instructions to generate a seismic map.

12. A system for acquiring seismic data while drilling a well, comprising;

- 5 (a) a surface seismic source for generating coded seismic signals;
- (b) a seismic receiver installed in a drill string to be conveyed in a bore hole, said seismic receiver comprising a sensor for detecting said coded seismic signals; and
- (c) said seismic sensor enabled to compute an arrival time for a detected seismic
10 signal.

13. The system of claim 12 wherein said seismic sensor is enabled to transfer the computed arrival time to the surface processor.

15 14. The system of claim 12 wherein said computed arrival time is stored in the seismic receiver.

15. The system of claim 12 wherein said coded seismic signals further comprise timed discrete events.

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16. The system of claim 12 wherein said coded seismic signals further comprise timed discrete frequencies.

17. The system of claim 12 further comprising a plurality of seismic receivers located along the drill string.

5 18. The system of claim 12 further comprising at least one sensor located at the surface for detecting a coded seismic signal and a processor for storing the signal detected by the at least one surface sensor.

19. A system for acquiring seismic data while drilling a well, comprising;

- 10 (a) a surface seismic source for generating coded seismic signals;
- (b) a seismic receiver installed in a drill string to be conveyed in a bore hole, said seismic receiver comprising a sensor for detecting said generated coded seismic signals; and;
- (c) said seismic sensor enabled to compute a checkshot transit time for a detected
- 15 seismic signal.